

A NEW COPROPHILOUS UROPODID MITE, CILLIBA COPROPHILA SP. NOV. FROM A BAT CAVE IN SOUTH AUSTRALIA (ACARINA-CILLIBIDAE)

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Fig. 1-3

SYNOPSIS

A new Uropodid mite, *Cilliba coprophila* sp. nov. living in the damp guano of a bat cave at Naracoorte, South Australia, is described and figured from the adults of both sexes, as well as from the larval, proto-, deuto-, and tritonymphal stages. It is shown to be strongly negatively phototropic in behaviour.

Family Cillibidae Trägårdh.

Trägårdh, I., 1944. Zur Systematik der Uropodiden—Ent. Tidsk., 65: 171.

Genus *Cilliba* v. Heyden

von Heyden, 1896. Isis Oken., 19: 613.

***Cilliba coprophila* sp. nov.**

Fig. 1 A-L, 2 A-G, 3 A-D

Types. The holotype female, allotype male and morphotypes of the larval and nymphal stages as well as numerous paratypes in the collection of the South Australian Museum.

Locality and Biotope. Found in very large numbers in the damp guano on the floor of a bat cave at Naracoorte, South Australia, August 26th to September 2nd, 1956 and collected by members of the Cave Exploration Group of South Australia led by Mr. E. Hamilton-Smith.

Description.

Holotype female. Fig. 1 A-K, M-N. A dark brown, strongly sclerotised and broadly oval species with convex dorsum and somewhat flatter venter: length of idiosoma 930 μ , width 670 μ .

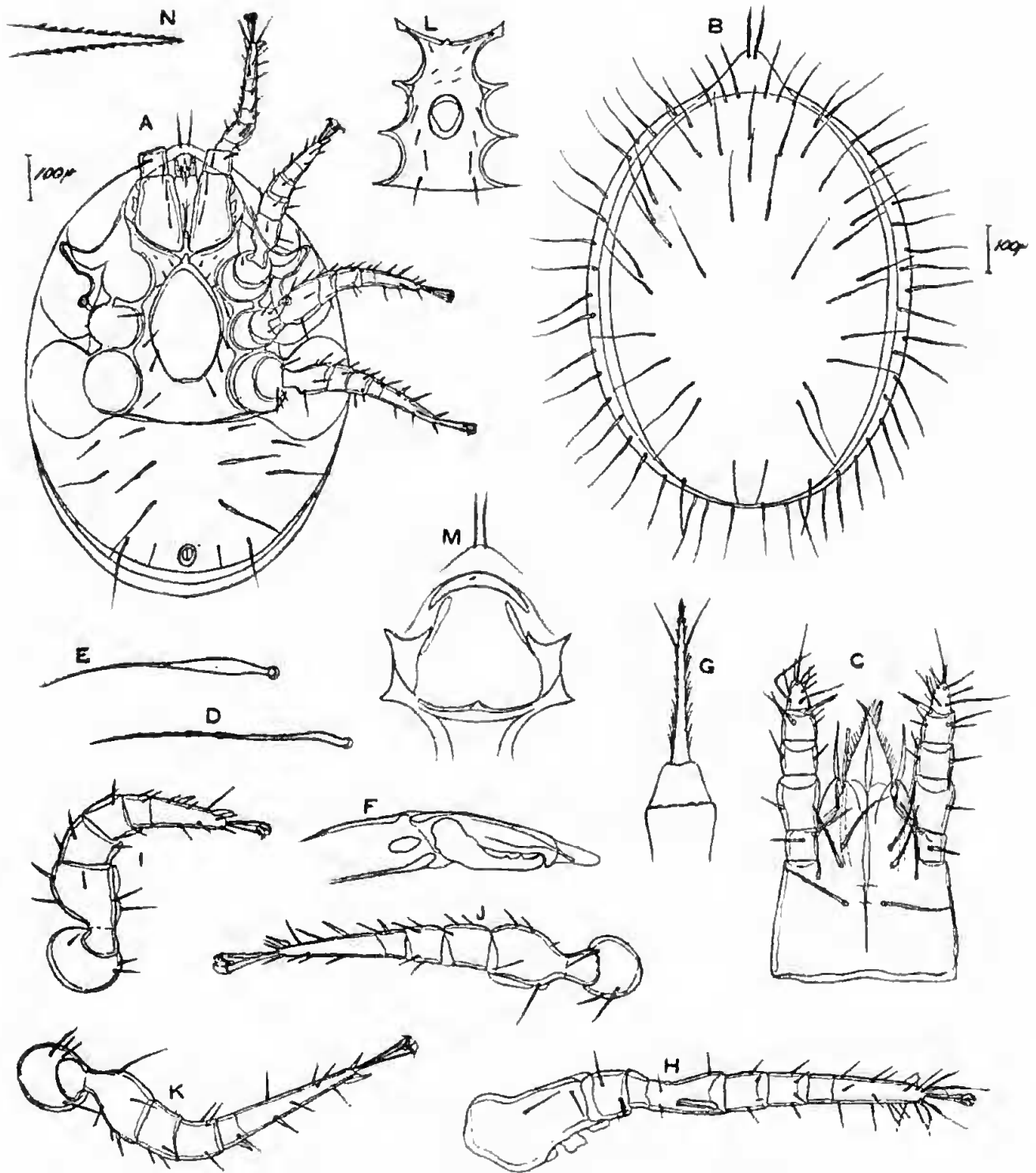


Fig. 1. *Cilliba coprophila* sp. nov. A-K, M-N Female. A—venter, B—dorsum, C—gnathosoma, D—dorsal seta, E—ventral seta, F—chelicerae, G—tritosternum, H—leg I, I—leg II, J—leg III, K—leg IV, M—camerostome, N—tectum, L—male, intercoxal shield.

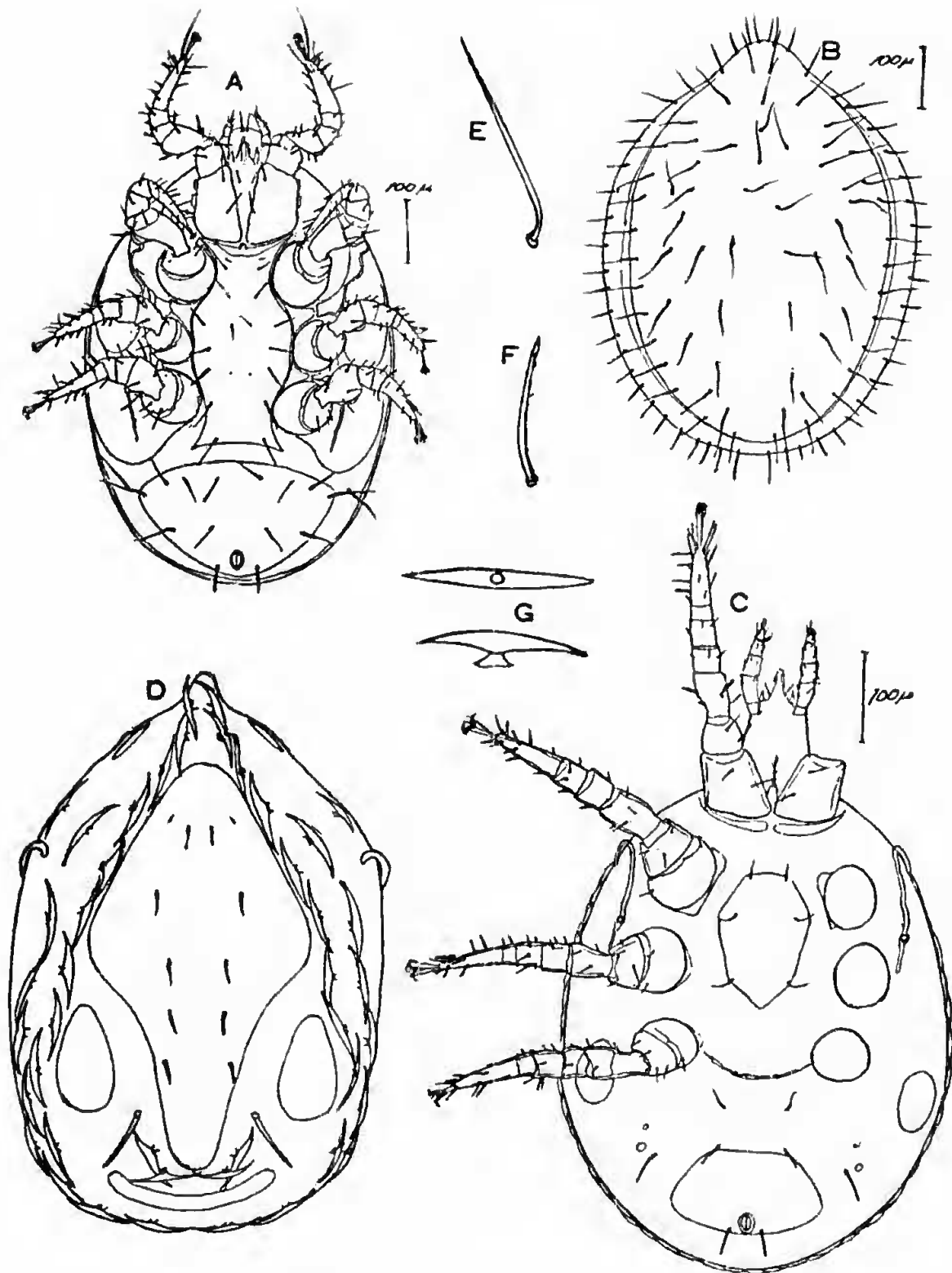


Fig. 2. *Cilliba coprophila* sp. nov. A-B, tritonymph, A—venter, B—dorsum, C-G deutonymph, C—venter, D—dorsum, E—posterior dorsal seta, F—posterior ventral seta, G—dorso-lateral and marginal setae in lateral and dorsal view.

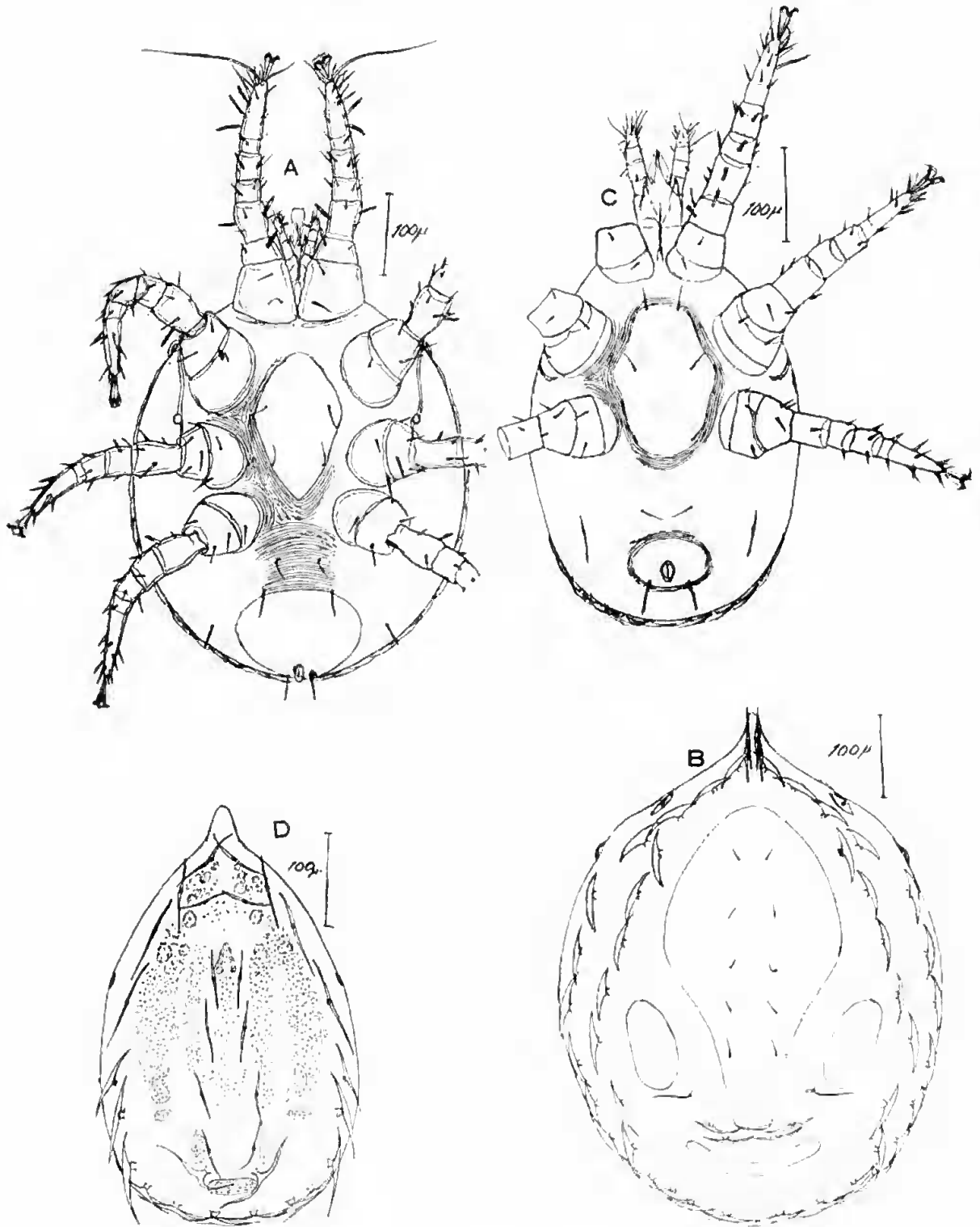


Fig. 3. *Cilliba coprophila* sp. nov. A-B protonymph, A—venter, B—dorsum. C-D larva, C—venter, D—dorsum.

Dorsum fig. 1 B; smooth and shining, idiosoma almost completely covered by an entire dorsal shield which is only separated by a narrow strip of cuticle from the narrow marginal shields, anteriorly the marginal shields coalesce with the dorsal shield while posteriorly they are only separated therefrom at the most by a thin suture line, anterior of the dorsal shield is the cone-shaped "vertex" shield which is somewhat less sclerotised and bears a pair of long 96μ vertical setae, the dorsal shield is furnished with ca. 20 pairs of long 180μ setae, fig. 1 D, which are slightly swollen at the base and distally barbed, the marginal shields carry a double row of about 20 pairs of similar setae on each side, in addition both dorsal and marginal shields are furnished with a number of small pores.

Venter fig. 1 A; anteriorly with a large camerostome, fig. 1 M, in which are situated the gnathosoma, coxae of legs I and the tritosternum; the tritosternum, fig. 1 G, is exposed between coxae I and consists of a two-segmented basal part and a single ciliated lacinia which is trifid distally; the ventral shields consist of a sterno-genital shield extending from the posterior margin of the camerostome to the posterior edge of acetabula IV where it is separated from the large and expanded ventri-anal shield by a strong suture line, the anterior margin of the sterno-genital shield is lightly curved and 192μ wide and forms the posterior margin of the camerostome, in the middle of the shield and extending from the anterior margin of acetabula I to the middle of acetabula IV is a large oval perigenital ring in which lies the close fitting similarly shaped epigynial shield, laterad of the perigenital ring the sterno-genital shield carries 7 pairs of simple setae and one pair of small anterior lyriform pores, the anterior three pairs of setae are small and lie between coxae II, the other pairs are longer and lie between coxae III and IV with the last pair posterior of the perigenital ring, the perigenital ring is 240μ long by 150μ and anteriorly has a small conical projection which divides the anterior margin of the shield; the ventri-anal shield occupies the whole of the venter posterior of acetabula IV where it is marked off by a posteriorly curved "metapodal line", the shield carries 6 pairs of medium to long setae which are distinctly swollen basally, fig. 1 E, and to 154μ long, as well as a pair of paranal setae; the endopodal shields are coalesced with the sterno-genital shield while the exopodals are strongly sclerotised to form the edges of the "fovealae pedales"; the stigma is situated between coxae II and III with a convoluted peritreme as figured.

Gnathosoma fig. 1 C; ventrally with four pairs of long, strong setae of which the capitular and both pairs of post-rostral setae are ciliated, the rostral nude; the tectum, fig. 1 N, is a long dentate hyaline spike; *palpi* 5-segmented, the basal segment carries two ciliated setae of which the inner is short and blunt, the tarsus is supplied with a number of long setae and its basal specialised seta is 2-tined; *chelicerae* as in fig. 1 F, strongly sclerotised, the fixed digit with only one strong tooth and an apical blunt hyaline lobe within which can be seen a canal which runs back through the digit, movable digit with two strong teeth.

Legs fig. 1 H-K; all short and six-segmented, the basal segments of II-IV lying within distinct foveae, leg I is the slenderest and furnished with coxal and femoral laminae as figured, legs II and III also with femoral laminae, all tarsi with long caruncle and paired claws and on II-IV with some strong spines; leg I 560 μ long, II 468 μ , III 468 μ , IV 526 μ .

Allotype male. Of the same general facies and size as in the female, differing only in the sterno-genital shield in the centre of which between coxae III lies the rounded genital orifice and shield (fig. 1 L). The chelicerae are similar to those of the female.

Morphotype tritonymph. Fig. 2 A-B; of the same general facies as in the female, but much less sclerotised and lighter in colour; length of idiosome 725 μ , width 550 μ .

Dorsum; dorsal and marginal shields as in adults, the dorsal setae plain or only indistinctly barbed distally, and to 80 μ long, the marginal setae slightly shorter.

Venter fig. 2A; sternal shield extending from posterior margin of camerostome to slightly beyond acetabula IV with a lightly concave posterior margin well separated from anterior margin of the ventri-anal shield, the anterior margin is 144 μ wide, the lateral margins closely contour the coxae but are separated from the endopodal shields by a very narrow strip of cuticle, the shield carries 8 pairs of setae and two pairs of pores, the third and fourth pairs of setae are in a transverse row, the anterior pores are lyriform and near the anterior margin, the other pair are small and round and lie between the sixth pair of setae, the shield is 326 μ long and its setae from 30 μ to 48 μ long; the ventri-anal shield is as figured, 360 μ wide and 182 μ long and furnished with long 80 μ setae as in the female.

Gnathosoma as in female.

Legs as in female, I 292 μ long, II-III 351 μ , IV 374 μ .

Morphotype deutonymph fig. 2 C-G; smaller and less sclerotised than the tritonymph; length of idiosoma 655μ , width 468μ .

Dorsum fig. 2 D; with four dorsal shields; a large median shield 410μ long, rounded anteriorly then widening gradually to 222μ in a line with coxae III and then contracting sharply to a rounded end just in front of the posterior shield, it is furnished with 5 pairs of simple setae 24μ , and one pair of lyriform pores anterior of the first pair of setae which are much nearer together than the other pairs; the posterior shield is transverse with concave anterior margin 176μ wide by 23μ long and without setae; laterad on each side of the posterior constricted portion of the median shield is an elongate widely oval shield 117μ long by 59μ wide and between the posterior end of these shields and the median shield is a long strong blunt barbed seta 59μ ; the marginal shields are not demarcated, only being indicated by two longitudinal rows of very peculiarly shaped setae, these setae are on papillae with a very short peduncle and then a pickaxe-head shaped seta with an expanse to 90μ , owing to the short peduncle or haft these setae are closely adpressed to the body surface, dorsally each seta is lightly convex and in dorsal view is a long narrow pointed ellipse (fig. 2 G), two other pairs of these setae lie close to the posterior tip of the median shield and in front of the posterior shield.

Venter fig. 2C; sternal shield small, 164μ long by 105μ wide, extending from anterior of acetabula II to posterior of acetabula III with the posterior margin tapering to a blunt angle, with 3 pairs of setae 35μ long; anal shield trapezoidal, anterior margin straight 100μ , lateral margins divergent and posterior margin lightly convex 175μ , with only the paranal setae 35μ long and the anus posterior, its length is 105μ ; a pair of oval shields just posterior of acetabula IV 82μ long by 35μ wide; a posteriorly curved suture line, in which is a pair of small rounded pores, runs between acetabula IV, between this line and the anterior margin of the anal shield are two pairs of fine setae and on each side laterad of the anal shield is a stronger seta with a pair of rounded shieldlets close by.

Gnathosoma as in tritonymph.

Legs as in tritonymph, I 355μ long, II 351μ , III 331μ , IV 346μ .

Morphotype protonymph fig. 3 A-B; very similar to the deutonymph but of smaller size; length of idiosoma 514μ , width 336μ .

Dorsum fig. 3 B; with the shields of the same conformation as in the deutonymph, median shield 413μ long by 384μ wide, with 5 pairs

of fine setae 20μ long, posterior shield 274μ wide by 14μ long, lateral shields 125μ long by 64μ wide; setae between lateral and median shields 61μ long, the pickaxe-head shaped setae to 91μ in expanse.

Venter fig. 3 A; much as in deutonymph, as figured; sternal shield 168μ long by 111μ wide reaching posteriorly to level of anterior of acetabula IV, only demarcated by discontinuity of cuticular striations, with 3 pairs of setae 34μ long; anal shield more rounded than in deutonymph, 173μ wide by 122μ long with only the paranal setae; the postero-lateral shields of the deutonymph are wanting; stigma and peritreme much as in the deutonymph.

Gnathosoma including palpi and chelicerae as in the deutonymph.

Legs as in deutonymph, I 360μ long, II 360μ , III 345μ , IV 384μ .

Morphotype larva fig. 3 C-D; small, length of idiosoma 480μ , width 288μ , with only 3 pairs of legs.

Dorsum fig. 3 D; without any definite shields except the posterior which is 125μ wide by 22μ long; with a medial double row of 5 pickaxe-head shaped setae which are very thin with an expanse to 67μ , marginally or submarginally with longitudinal row of 10 similar setae on each side, of which the first 4 are thin, the others thicker and shaped as in the deutonymph, just in front of the posterior shield is a pair of similar setae with an expanse of 125μ ; the dorsal surface is irregularly ornamented by pitting as figured.

Venter fig. 3 C; as in protonymph, but the sternal shield is only indicated by the break in the cuticular striations, it is 160μ long by 102μ wide with 3 pairs of setae 23μ long; the anal shield is even more rounded than in the protonymph, 91μ wide by 63μ long; between the sternal and the anal shield is a single pair of fine normal setae and laterad of these a very fine pickaxe-head shaped seta; the peritreme is only slightly developed and the stigma is just posterior of coxae II.

Gnathosoma, palpi and *chelicerae* much as in protonymph.

Legs as figured, I 336μ long, II 336μ , III 312μ , IV 326μ .

Remarks. This is an interesting and remarkable species in the sudden and extreme morphological change in the form of the dorsal and marginal setae from the pickaxe-head shape in the larva, protonymph and deutonymph, to the normal type of seta found in the tritonymph and adults. The pickaxe-head setae in the earlier stages may possibly be of assistance in enabling the mites to traverse the pellets of guano in which the mites live.

The collection of these mites, many thousands, was from a 2 lb. treacle tin of moist guano collected from the bat cave and sent to the Museum. When first opened the surface of the guano was a seething mass of living mites, but within seconds of being exposed to the light, they had all disappeared below the surface. This negative response to light was repeated many times.